

Education for ecological identity in the function of sustainable development

Vaspitanje i obrazovanje za ekološki identitet u funkciji održivog razvoja

Emilija Marković^{a*}, Jelena Krulj^a, Milena Vidosavljević^b

^a Univeristy of Priština in Kosovska Mitrovica, Faculty of Teachers Education in Prizren, Leposavić, Serbia

^b Institute for Serbian Culture Priština in Leposavić, Serbia

Article info

Review paper/ Pregledni rad

Received/ Rukopis je primljen:
12 March, 2024
Revised/ Korigovan:
18 April, 2024
Accepted/ Prihvaćen:
30 May, 2024

DOI:

<https://doi.org/10.5937/bizinfo2401113M>

UDC/ UDK:

502.131.1

Abstract

Modern way of living has brought many different problems referring to living environment such as climate changes, shortage of available natural resources, changing in functioning of the most important natural processes etc. which has begun dangerous for living of the human kind. On the other side, technology, economy, society have their own interest. Sustainable development has emerged based on the need for making optimal interaction between mentioned systems. One of the basic elements which is referring on the human being is development of the ecological identity. There are several connected terms, like biophilia, naturalistic intelligence, ecological identity and all of them are related to the special type of connection with nature which is characterized by loving nature, positive attitudes to it and having the consciousness of the importance of nature and living environment in the aim of surviving of human beings. This also includes development of ecological consciousness, ecological literacy and ecological ethics which should be incorporated in ecological identity. Development of the ecological identity is unfolding in the educational process, especially in the process of socialization which begins from the earliest period in one's life and lasts through the whole life. The goal of this article is to analyze the role of education in forming of ecological identity and its consequences on decision making process about pro-environmental behaviors in making efforts for achieving of the goals of the sustainable development.

Keywords: sustainable development, education, pro-environmental behaviors, ecological identity

Sažetak

Savremeni način života doneo je i različite probleme koji se odnose na životnu sredinu kao što su klimatske promene, manjak raspoloživih prirodnih resursa, promene u funkcionisanju najvažnijih prirodnih procesa itd., što je počelo da predstavlja opasnost za život ljudske vrste. S druge strane, tehnologija, ekonomija, društvo imaju svoje sopstvene interese. Pojava Održivog razvoja zasnovana je na potrebi stvaranja optimalne interakcije između pomenutih sistema. Jedan od osnovnih elemenata koji se odnosi na ljudska bića jeste razvoj ekološkog identiteta. Postoji nekoliko povezanih pojmova kao što su biofilija, naturalistička inteligencija, ekološki identitet i svi su oni povezani sa posebnom vrstom povezanosti sa prirodom koju odlikuje ljubav prema prirodi, pozitivni stavovi prema njoj i posedovanje svesti o značaju prirode i životnog okruženja, a u cilju opstanka ljudskih bića. Ovo takođe uključuje razvoj ekološke svesti, ekološke pismenosti i ekološke etike koje treba da se inkorporiraju u ekološki identitet. Razvoj ekološkog identiteta se odvija kroz vaspitno-obrazovni proces, posebno kroz proces socijalizacije koji započinje u najranijem periodu života i traje kroz čitav život. Cilj ovog rada jeste analiza uloge vaspitanja i obrazovanja u formiranju ekološkog identiteta i njegovih posledica na proces donošenja odluka o pro-environmentalnim ponašanjima prilikom nastojanja da se postignu ciljevi održivog razvoja.

Ključne reči: održivi razvoj, obrazovanje, pro-environmentalna ponašanja, ekološki identitet

*Corresponding author

E-mail address: emilija.markovic@pr.ac.rs

This is an open access paper under the license



1. Introduction

The main goal of this article is to analyze the role of environmental education in forming of ecological identity in the function of making right decisions which can contribute to achieve the goals of sustainable development. Surviving of human kind demands establishing a balance between human, nature, economical and technological needs. This is not easy to achieve. All interested parties have tendency to put themselves as the prior. But effect of human acting, excessively using of energy resources, pollution, climate changes etc. have imposed the need for reconsideration about the process of sustainable development. It needs changing of human behavior, understanding that nature has its limits, developing of ecological awareness and different attitudes toward natural goods. In this process, the mediating factor could be developing of ecological identity which includes developing of new values directed to the well-being of the nature, positive affective relation to nature and understanding how nature and humans are closely interconnected. There is some kind of interdependence in relationship between person and environment which participates in developing of special lifestyle that can help in reaching of the goals of sustainability in socio-ecological system (Perez Ibara et al., 2020) Developing of ecological identity is the result of ecological education. In such awareness of this interdependence, ecological identity is emerging. In the process of ecological education, a person is learning about the importance of the nature, requiring skills needed for recognizing the interdependence between human, culture and biophysical system and developing practical skills for solving problems related to such interconnection (Golubchikova et al., 2019). So, all educational dimensions for sustainable development should take into account different ecological goals (Vidosavljević, 2021) and understand that economic prosperity does not have to be at the expense of nature.

2. Sustainable development

In National Strategy of sustainable development of Republic of Serbia, sustainable development is represented as long-term oriented, comprehensive and synergistic process which influences on economic, social and ecological aspects of life on all their levels (Nacionalna strategija održivog razvoja, Vlada Republike Srbije, 2008, 39). That means that the general goals of sustainable development are economic growth, social equality and environmental protection. In the same Strategy, education for sustainable development is defined as not only application of consists of sustainable development in educational system, but as educational system which reinforces knowledge based on economy and represents inevitable assumption for sustainable development of economy and society as the whole. Environmental psychology is occupying by the level of connectedness or affiliation of human being with nature and consequences of the strength of such connectedness or affiliation on sustainable development. Two main concepts of sustainable development are the concept of needs, especially needs of the poorest people to whom the

special accent should be put and the concept of limitation of environmental resources that are available for present and future needs (Ratiu, Anderson, 2014). For gaining the goals of sustainable development, the developed system of environmental education is needed. Environmental education is the process of establishing of values, beliefs, abilities for actions in the context of achieving sustainable development and promotion of ecological ethics, and for biodiversity conservation (Ilovan et al., 2019).

Surviving of humans depends on the state of the environment. If we want healthy individuals, healthy society than our environment should be also healthy. Sustainable development needs environmental citizen who is committed to public good, committed to common values about environment and with recognition that behaviors that are driven by personal interest can be threatening for the nature (Piskoti, 2015). Some researchers (Bentley, 2000) have found that economical status can influence attitudes about sustainability and that affluent people are more likely, compared to people with lower income, to engage in pro-environmental behaviors and in green consumption (Chakravarty et al, 2009). But affluent people frequently are not overcoming the tendency to increase energy usage as their income rises despite their attitudes, knowledge or intention to act (Hurth, 2010). That gap between values, attitudes, intentions and manifested behavior is called value-action gap.

Drexhange and Murphy (2010) state that the essence of different definitions of sustainable development includes: 1. commitment to fairness and equality in developing of the world; 2. responsible decision making for present and future generations; 3. long-term perspective; 4. understanding and connection of three elements - environment, economy and society and efficiently acting in this complex interconnection. Sustainable development represents the new paradigm which has its origin in moral reasoning and refers to economic growth which implies sustainable usage of natural resources, improves the quality of human life and environment and has the positive influence on human development (Kostić et al., 2022). On the other side, different climate-related factors like high humidity, forest fires, excessive heat etc. influence on psychological distress, worsening of mental health, negative emotional responses and climate anxiety (Sierra-Baron, 2022).

If corporations want to present themselves in a positive image, they should develop the strong ecological identity in the whole organization, that is organizational identity that includes identification among the organizational members (Adamsson, 2012). In the process of members' communication organizational ecological identity is developing.

2. Ecological identity

Ecological identity represents one of the most important predictors of pro-environmental behavior which is necessary if humans want to live in sustainable world. The first idea of biophilia referees on human's innate need to

affiliate with nature which is the result of evolutionary development along with nature and some researchers have found that people with stronger biophilic tendencies feel more of psychological wellbeing (Hinds & Sparks, 2009).

Clayton et. al. defines environmental-ecological identity in the way of describing “a person’s self-understanding as an integrated component of the natural environment, and thus has the potential to influence any behavior that an individual perceives as environmentally relevant or having environmental impact” (Clayton et al., 2021, p.2). Here the environment begins to be the important source of self-relevant values and beliefs that participate in personal self-definition where relations between human and nature are mediated by empathy (Sierra-Baton et al., 2022). Ecological identity has three main components - cognitive, affective and behavioral (Balunde et al., 2019). Cognitive component is referring to one’s attitudes about ecological phenomena and problems, affective one is referring on one’s emotional relation to the nature and both of those are resulting in one’s behavior in natural context. Piskoti (2015) adds motivational component in the sense of intention to insure well-being of human, other living kinds and ecosystem. She also suggests that ecological self-results in pro-environmental behavior are not the result of self-sacrifice but of self-love that makes environment protection important. We can assume that our readiness to behave in some way (pro-environmental or not) depends on the strength of our attitudes and emotions.

Ecological identity is the part of the overall individual’s self-identity. It is the step of the way in which one is forming his or her self-identity (Clayton, 2003). It is manifested in the personality, sense of self, values, norms, behavioral actions (Tomashow, 1995). Most authors are reporting about existence of two kind of ecological identity (that is also the case with self-identity as the wholeness which is divided on different specific identities)- *general* and *role specific* ecological identity where general ecological identity is referring on our identification with ecological acting as the wholeness, while role specific ecological identity is rather concerning to identification with specific groups which deal with specific ecological issues (Balunde et al., 2019). Role specific ecological identity is the function of the level of performing specific ecological behavior and can predict the likelihood of one’s behavior in the specific situation regardless of his or her general ecological identity manifested in behavior (Kaiser et al, 2003). Some authors are reporting about existing of *collective identity* meaning on readiness for engaging in different social movements targeted to ecological themes and problems (Dewey, 2020).

Generally, we can differ two kinds of pro-environmental attitudes included in ecological identity: anthropocentric and eco-centric attitudes. Anthropocentric attitudes are based on the point of view that human beings are separated from nature, have central position in the entire world, so nature should be subordinated to humans and humans have the right to use everything from nature that could be of benefit for them (Gribben & Fagan, 2016). Eco-centrics

orientation has intrinsic value and promotes preserving of nature regardless on any economic interest (Thompson, Barton, 1994). It is similar to the discussions in the literature about instrumental and intrinsic values which impose the question if nature has the value of achieving the goals in the interest of humans or it has the value for itself (Vidosavljević et al. 2022). In addition, Borden and Frensis (Kollmuss & Agyeman, 2002) hypothesize that individuals who are selfish and competitive do not tend to act ecologically while individuals who are self-actualized are more likely to behave in an ecologically appropriate way because they are not burdened by basic needs and can carry about higher ecological issues.

3. Developing of ecological identity through education

Forming of identity is under dominant influence of the society, social interactions and when we are mentioning the influence of the society than we are talking about the experience’s exposure, that is learning. Watching of pro-environmental behavior of others has the effect of facilitation (Perez Ibara et al., 2020), so imitation of such behaviors participates in development of ecological identity. From the point of view of educational and learning context, one’s identity can influence his or her actions in “how one is recognized by others and by oneself, and the actions and behaviors one decides to adhere to” (Freeds, 2015, p. 17). Wilber (Brusafero, 2020) says that ecological education needs transformation of consciousness from egocentric through socio-centric to world-centric awareness.

Like other identities, ecological identity starts its formation when a child acquires consciousness about its social interactions, and it is developing through the whole life. Kempton and Holland (2003) have given the model about development of ecological identity which includes three key elements: awareness about environmental problems; identification of one’s self as an actor in environmental context who should participate in solving problems; readiness for acquiring and expanding knowledge about ways for engaging in solving of ecological problems and engaging in educating of less experienced individuals. Fietkau and Kessel (Kollmuss & Agyeman, 2002) stress perceived feedback about manifested ecological behavior as one of the most important factors for pro-environmental behavior, claiming that one should receive positive intrinsic or extrinsic reinforcement to continue to engage in such behavior.

Considering that ecological consciousness is one of the very important factor for realizing of sustainable development, forming of the ecological identity has significant importance in this process. Forming of ecological identity starts in the early childhood. “Ecological identity in early childhood includes, the physical, emotional, and cognitive awareness of one’s relationship with the larger communities of the natural world” (Brusafero, 2020. p. 14). It is developing under the influence of educational process including family, preschool institutions, schools and other relevant environmental factors. The key process is the process of

socialization which is acting through its different agents of socialization as factors that are transferring ecological norms and values to a child, which should be followed by forming of attitudes which are congruent with saving of the nature and aimed to stop its devastation (Dewey, 2020). So, the process of internalization (subjectivization) of other's environmental beliefs represent the forming factor in constructing of the self (Sierra-Baron, 2022). Those attitudes lead to certain pro-environmental behavior, and here, we have two-way rout, behavior can influence on further development of identity and identity influences on behavior (Freed, 2015). In the world there are natural preschools which are aimed to children's high quality nature-based education, that is, spending a lot of time in nature occupying with natural activities and games which support development of ecological identity as the root of later ecological values and habits in children (Brusafero, 2020). Establishing of ecological habits can comes later when children overcome instrumental and egocentric phase in their development.

Palmer (Piskoti, 2015) also stresses the role of outdoor experiences in childhood that lead to environmental concern of adults. In adolescence, the main influence in forming of ecological identity belongs to friends and education, and in adulthood to organizational socialization and identification with organization's formal and non-formal group's norms.

Children's environmental experiences which come from different educational sources have great importance for developing of ecological awareness as the base in forming of ecological identity (Corraliza & Collado, 2019). Ecological education is especially efficient if it is realizing with environmentally active friends and organizations who answer to children's questions and respect their interests and curiosity (Williams & Chawla, 2015). Some researchers (Evans et al., 2018) found that more positive parental attitude about the nature influences more positive attitudes in children and that more time spent in outdoor activities influence more pro-environmental behavior in early childhood.

4. Relations between ecological identity and sustainable development

In the centre of the concept of sustainable development, which is treated as normative by some authors, is integrative connection between ecological, social and economic issues with education which should lead to more equal world (Andevski, 2016). The cause of many ecological problems is in human's behavior and the question are why humans are often destructive according to nature. Corral et al. (2009) have found that psychological affective and cognitive components are responsible for ecological and prosocial actions and their simultaneous presence is the base of psychological dimensions of sustainability. Perez Ibara et al. (2020) also have found that affective state can help in identification with the nature, but they also say that having an ecological identity do not have to result in pro-environmental behavior. For instance, Kempton and Holland (2003) have found that ecological identity is not in correlation with

recycling behavior. We can rather say that ecological identity can be the predictor of certain pro-environmental behaviors. Hinds and Sparks (2009) have stated that those once with stronger biophilic (ecologic) tendencies have more positive conservation ethics. On the other side, (Bruni et al., 2021) have found in their research that ecological identity fosters pro-environmental behaviors, leads to developing care for nature and sustainable acting, and those changes are not immediate but lasting. Experiences in nature which increase the sense of connectedness with nature precede this, and are followed by changing of attitudes toward to sustainability and increase self-esteem.

As we have mentioned before, Dewey (2020) had told us about collective ecological identity and then, she also had extended this concept to *social movement identity*, which is more than signing of different petition, but are responsible behavioral aspects of a person and results in making social changes such as consuming of green products, active participating in recycling, energy-efficient behaving etc. Ro et al. (Perez Ibara et al., 2020) call it *social diffusion*, meaning on the influence of other's performing of pro-environmental behavior which one is imitating and with which one is identifying and subsequently forming sustainable habits. Starting from the point of environmental lows that are claiming about interconnection of all living beings, participating of all of us in the biosphere which is one for all, and the fact that any change in the biosphere has the impact to all of us, authors say that "Environmental education is the appropriation of knowledge about environmental laws that can reduce damage to wildlife during the economic activities of people. Any person who has received a basic environmental education is able to organize their actions in such a way as to reduce or even eliminate this damage" (Golubchikova et al, 2019, p. 3).

Despite the first theory of environmental education known as Knowledge-attitude-behavior theory, other researchers (Kollmuss & Agyeman, 2002) claim that environmental education based on providing information and traditional education methods, are insufficient for sustainability, but the goal of sustainability needs pragmatic approach of social marketing which put the accent on behavior and select different tactics to provoke given behavior. Similarly, Fietkau (Kollmuss & Agyeman, 2002) claims that knowledge by itself do not influence behavior but act as modifier of values and attitudes. It does not mean that information does not have any value. Information and knowledge can help to individual to anticipate consequences of intended behavior and can contribute to making better decisions (Hungerford, Volk, 1990). It was mentioned that childhood is the crucial period when children through different experiences and activities in nature are starting to gain ecological values, beliefs which will lead to ecological way of thinking, ecological habits and social skills appropriate for sustainable development. Most of these activities take place in preschool institutions and schools. But non-formal environmental education also increases ecological literacy, ecological ethics, gardening

abilities and sustainable food practices (Ilovan et al., 2019).

From the point of view of economists and society, anthropocentric values are dominant, while from ecological point of view eco-centric values have the primacy (Kopnina & Cocis, 2107). Tay and Diener (Jena & Behera, 2017) stress the distinction between needs and desires for environmental psychology, where needs should be treated as universal while desires could be under the influence of the culture which can promote anthropocentric or eco-centric values. Idea of sustainable development is trying to interact those two value orientations, which means that optimal ecological identity should make the balance between those orientations. Unfortunately, "Even at today's population level, many of our current practices are not sustainable, meaning the consequences of our actions and limitations of resources will make it impossible to conduct business as usual for future generations... And many of us require substantially more to meet our perceived needs of comfort, convenience and transportation" (Lehman, Geller, 2004, p. 14). For achieving the goals of sustainable development, a significant number of people should have strong ecological identity based on strong attitudes and internalized values which could lead to intrinsic motivated ecological behaviors.

Some authors (Whitmarsh, & O'Neill, 2010; Zheng et al., 2021) have found that people who have strong ecological identity show more readiness to save energy, prefer eco-shopping, are engaging in recycling, strive to avoid excessively usage of fuels etc. On the other hand, Thompson and Barton (1994) say that people with anthropocentric values (who do not have an ecological identity or have weak identity) can expose pro-environmental behavior like consuming behavior, but which is not intrinsically motivated, rather for self-interested reasons like earning some money while ecocentrics (with high ecological identity) do not need such reinforcement. Action, choice, and behavior are all parts of one's ecological identity (Tomashow, 1995), and pro-environmental behavior is motivated by ecological identity (Freed, 2015). But, Freed (2015) also have found, similarly like Kempton and Holland (2003) that decision making about recycling was non influenced by ecological identity but rather by conventionally located recycle bins, family relationships, social norms and emotions which are present on the intuitive level of decision making.

Besides, people have the need to behave in the way which is congruent with their identity so they seek for environmental situations that do not have or have just several barriers for expressing behaviors which are in accordance with and support their identity (McGuire, 2015). In this way people reinforce their positive self-image of themselves by having knowledge about what they have done in environmental context and if that process of behavioral decision making is positively evaluated, that can be the way to self-actualization. This can lead to the feeling of self-expansion, feeling of being the part of functioning system and that can provoke

changing of self in the direction of including other people through mutual natural experiences (Clayton, 2003).

5. Conclusion

Sustainable development seems to be of high importance for surviving of present and future generations, so for gaining this goal, it is needed concern about preserving of the nature but taking into account economical issues and human well-being. Stern et al. (1993) have said that environmental concern is based on a distinction between egoistic, social- altruistic and biospheric values. People should know how to live and how to act to contribute to living which is more sustainable with the natural resources that are available. Environmental education is education for sustainability. Environmental education begins in early childhood and continues through later schooling and after that in organizational and everyday communication in life. Information that are taken during formal education are not sufficient for forming of ecological identity. Rather, experiences in nature and participation in ecological organizations are more important for commitment to pro-environmental behavior (Dresner et al., 2014). That means that in environmental education, under influences of different agents of socialization and different experiences, ecological identity is developing. It is referred on our relationship with the as one of the most important factors for pro-environmental behavior nature, which include cognitive, affective and motivational aspects that are manifested in behavior.

Having an ecological identity does not mean necessary that one will always behave in pro-environmental manner. Different contextual factors can influence on tendency of someone to behave in non-ecological way trying to find different excuses like need for transportation etc. In a way, we can assume that ecological identity, weaker or stronger, will depend on the amount of ecocentric versus anthropocentric attitudes. Strong anthropocentric values are close to instrumentalists and utilitarians while ecocentrics believe that nature has independent value because of having transcendental dimension (Thomson, Barton, 1994).

The role of emotional factor in pro-environmental behavior is one of the crucial. The stronger emotional reaction towards nature, the stronger values, attitudes, beliefs, and it will result in stronger likelihood for engaging in pro-environmental behaviors (Jena, Behera, 2017). So, the strength of ecological identity participates in decision making about behaviors that are related to sustainability. Pro-environmental behaviors are necessary for gaining the goals of sustainable development were developing of ecological identity leads to behavioral changes directed to pro-environmental actions. Freed (Freed, 2018) have found that ecological identity is more predictive factor than attitudes for sustainable behaviors, where decision making process is mediating between identity and manifested behavior. So, we can conclude that having an ecological identity, developed in the process of environmental education, is the important factor which takes a part in decision making process about

behaviors that are related to the issues of sustainable development.

References

- Adamsson, E. (2012). *Forming and Communicating of an Environmental Identity and Image* [Unpublished master's thesis]. Sodertorn University.
- Andevski, J. M. (2016). Održivo ekološko obrazovanje-perspektiva za promenu kulture učenja. *Inovacije u nastavi*, 29(4), 16-31. <https://doi.org/10.5937/inovacije1604016A>
- Balundé, A., Jovarauskaitė, L., & Poškus, M. S. (2019). Exploring the relationship between connectedness with nature, environmental identity, and environmental self-identity: A systematic review and meta-analysis. *Sage Open*, 9(2), 2158244019841925. <https://doi.org/10.1177/2158244019841925>
- Bentley, M. (2000). Consumer trends and expectation: An international survey focusing on environmental impact. *UNEP Industry and Environment Review*, 23, 9-11
- Bruni, C. M., Schultz, P. W., & Woodcock, A. (2021). The Balance Structured Environmental Identity. *Sustainability*, 13(15), 8168. <https://doi.org/10.3390/su13158168>
- Brusafero, R. V. (2020). *Shaping "Little" Ecological Worldviews: A Case Study of Ecological identity Indicators at Forest Preschool*. ProQuest.
- Clayton, S. (2003). Environmental Identity: A Conceptual and an Operational Definition. In S. Clayton & S. Opatow (Eds.). *Identity and the natural environment: The psychological significance of nature* (pp.45-65). MIT Press. <https://doi.org/10.7551/mitpress/3644.003.0005>
- Clayton, S., Czellar, S., Nartova-Bochaver, S., Skibins, C.J., Salazar, G., Tseng, Y. C., Irkhin, B., Monge-Clayton, S., Czellar, S., Nartova-Bochaver, S., Skibins, J. C., Salazar, G., Tseng, Y. C., ... & Monge-Rodriguez, F. S. (2021). Cross-cultural validation of a revised environmental identity scale. *Sustainability*, 13(4), 2387. <https://doi.org/10.3390/su13042387>
- Corral, V., Bonnes, M., Tapia, C., Fraio, B., Frias, M., & Carrus, G. (2009). Corelates to pro-sustainability orientation: The affinity towards diversity. *Journal of Environmental Psychology*, 29(1), 34-43. <https://doi.org/10.1016/j.jenvp.2008.09.001>
- Corraliza, A. J., Collado, S. (2019). Ecological awareness and children's environmental experience. *Psychologist Papers*, 40(3), 190-196. <https://doi.org/10.23923/pap.psicol2019.2896>
- Dresner, M., Handelmanb, C., Brauna, S., & Rollwagen-Bollencs, G. (2014). Environmental identity, pro-environmental behaviors, and civic engagement of volunteer stewards in Portland area parks. *Environmental Educational Research*, 21(7), 991-1010. <https://doi.org/10.1080/13504622.2014.964188>
- Drexhange, J., & Murphy, D. (2010). Sustainable Development: From Brundtland to Rio2012. Background. *Paper Prepared for Consideration by the High-Level Panel on Global Sustainability and Its First Meeting*, 19 September 2010, UN Headquarters, New York.
- Dewey, M. A. (2020). Shaping the Environmental Self: The Role of Childhood Experiences in Shaping Identity Standards of Environmental Behavior in Adulthood. *Sociological Perspectives*, 64(4), 657-675. <https://doi.org/10.1177/0731121420981681>
- Evans, G. W., Otto, S. & Kaiser, F. G. (2018). Childhood origins of young adult environmental behavior. *Psychological Science*, 29(5), 679-687. <https://doi.org/10.1177/0956797617741894>
- Freed, A. (2015). *Exploring the link between environmental identity, behaviors and decision making* [Unpublished doctoral dissertation]. Michigan State University.
- Freed, A. (2018). The relationship between university student's environmental identity, decision making process and behavior. *Environmental Education Research*, 24(3), 474-485. <https://doi.org/10.1080/13504622.2017.1320705>
- Golubchikova, M., Suyunova, G., Kairova, M., Arpentieva, M., & Kolomiyets, O. (2019). The transformation of identity in ecological education: Personal, interpersonal and professional aspects. *E3S Web of Conferences* 135, 04019. ITESE-2019. <https://doi.org/10.1051/e3sconf/201913504019>
- Gribben, J., & Fagan, J. (2016). *Anthropocentric Attitudes in Modern Society*. <https://doi.org/doi:10.7282/T3S184T1>
- Hinds, J., Sparks, P. (2009). Investigating Environmental Identity, Well-Being and Meaning. *Ecopsychology*, 1(4), 181-186. <https://doi.org/10.1089/eco.2009.0026>
- Hungerford, R. H., & Volk, L. T. (1990). Changing learner behavior through environmental education. *The Journal of Environmental Education*, 21(3), 8-21. <https://doi.org/10.1080/00958964.1990.1075374>
- Hurth, V. (2010). Creating sustainable identities: the significance of the financially affluent self. *Sustainable Development*, 18(3), 123-134. <https://doi.org/10.1002/sd.453>
- Ilovan, R. O., Dulama, M. E., Havadi-Nagu, X. K., & Botan, B. C. (2019). Environmental education and education for sustainable development in Romania - Teachers' perceptions and recommendations. *Romanian Review of Geographical Education*, 8(2), 21-37. <https://doi.org/10.23741/RRGE220192>
- Jena, K. L., & Behera, B. (2017). Environmental crisis and human well-being: A review. *International Journal of Development and Sustainability*, 6(8), 561-574.
- Kaiser, G. F., Doka, G., Hofstetter, P. & Ranney, A. M. (2003). Ecological behavior and its environmental consequences: a life cycle assessment of a self-report measure. *Journal of Environmental Psychology*, 23(1), 11-20. [https://doi.org/10.1016/S0272-4944\(02\)00075-0](https://doi.org/10.1016/S0272-4944(02)00075-0)
- Kempton, W., & Holland, D. C. (2003). Identity and sustained environmental practice. In S. Clayton & S. Opatow (Eds.), *Identity and natural environment*. 317-342. Cambridge: MIT Press. <https://doi.org/10.7551/mitpress/3644.003.0019>
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behavior?. *Environmental Education Research*, 8(3), 239-260. <https://doi.org/10.1080/13504620220145401>
- Kopnina, H., & Cocis, A. (2017). Testing Ecocentric and Anthropocentric Attitudes toward the Sustainable Development (EAATSD) Scale with Bachelor Students. *European Journal of Sociology and Anthropology*, 10(3), 457-477. <https://doi.org/10.7213/rebrae.10.003.AO08>
- Kostić, V., Milićević, S., & Despotović, D. (2022). Sustainable development management seen through the prism of natural capital preservation imperative. *BizInfo (Blace) Journal of Economics, Management and Informatics*, 13(1), 41-48. <https://doi.org/10.5937/bizinfo2201041K>
- Lehman, K. P., & Geller, E. S. (2004). Behavioral Analysis and Environmental Protection: Accomplishment and Potential for More. *Behavior and Social Issues*, 13(1), 13-32. <https://doi.org/10.5210/bsi.v13i1.33>
- McGuire, N. M. (2015). Environmental education and behavioral change: An identity-based environmental education model. *International Journal of*

- Environmental and Science Education*, 10(5), 695-715.
<https://doi.org/10.12973/ijese.2015.261a>
- Vlada Republike Srbije. (2008). *Nacionalna strategija održivog razvoja*. Vlada Republike Srbije.
<http://indicator.sepa.gov.rs/slike/pdf/o-indikatorima/nacionalna-strategija-odrzivog-razvoja-srbije>
- Pérez Ibarra, R. E., Tapia-Fonllem, C. O., Fraijo-Sing, B. S., Nieblas Soto, N., & Poggio, L. (2020). Psychosocial predispositions towards sustainability and their relationship with environmental identity. *Sustainability*, 12(17), 7195.
<https://doi.org/10.3390/su12177195>
- Piskoti, M. (2015). *The role of environmental identity in the development of environmentally conscious behavior* [Unpublished doctoral thesis]. Corvinus University of Budapest.
- Ratiu, C., & Anderson, B. (2013). The identity crises of sustainable development. *World Journal of Science Technology and Sustainable Development*, 11(1), 4-15.
<https://doi.org/10.1108/WJSTSD-08-2013-0033>
- Stern, P. C., Dietz, T., & Kalof, L. (1993). Value orientation, gender, and environmental concerns. *Environment and Behavior*, 25, 322-348.
<https://doi.org/10.1177/0013916593255002>
- Thompson, C. S., & Barton, A. M. (1994). Ecocentric and Anthropocentric Attitudes Toward the Environment. *Journal of Environmental Psychology*, 14, 149-157.
- Sierra-Barón, W., Olivos-Jara, P., Gómez-Acosta, A., & Navarro, O. (2023). Environmental identity, connectedness with nature, and well-being as predictors of pro-environmental behavior, and their comparison between inhabitants of rural and urban areas. *Sustainability*, 15(5), 4525.
<https://doi.org/10.3390/su15054525>
- Thomashow, M. (1995). *Ecological Identity: Becoming a reflective environmentalist*. MIT Press.
<https://doi.org/10.2458/v2i1.20170>
- Thomson, C. S., & Barton, A. M. (1994). Ecocentric and anthropocentric attitudes toward the environment. *Journal of Environmental Psychology*, 14, 149-157.
[https://doi.org/10.1016/S0272-4944\(05\)80168-9](https://doi.org/10.1016/S0272-4944(05)80168-9)
- Vidosavljević, S. (2021). *Ekološko vaspitanje u predškolskim ustanovama*. Učiteljski fakultet Prizren-Leposavić.
- Vidosavljević, S., Marković, E., Krulj, J., & Lazovic, N. (2022). Ecological ethics and living environment. *Knowledge*, 55(3), 423-427.
- Williams, C. C., & Chawla, L. (2016). Environmental identity formation in nonformal environmental education programs. *Environmental Education Research*, 22(7), 978-1001.
<http://dx.doi.org/10.1080/13504622.2015.1055553>
- Zheng, L., Tong, Z., & Sun, Y. (2021). The Effects of Labeling on Environmental Self-identity. In *E3S Web of Conferences* (Vol. 261, p. 03038). EDP Sciences.
<https://doi.org/10.1051/e3sconf/202126103038>

